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Don't Be Addicted: The Oft-Overlooked Dangers of Simplification

Abstract We are seldom taught that simplification has a high risk of failure. In truth, it only works up to a point, after which all that lies ahead is failure. To examine the limits of simplicity is to look at what happens when our efforts to make things fit into a sound bite, label, or keyword go awry. When simplification works, it can indeed be very effective. But simplification does not always work – so more is not necessarily better. And when simplification fails, it fails miserably. This article exposes the limitations of simplification as a design choice, explores the cognitive origins of why we often get led astray in making such a design choice, and explores how we might develop a set of practical heuristics to counter the seductiveness of simplicity itself. The goal is appropriateness and balance – what cybernetics calls requisite variety, and what many design practitioners call placing context in context. The article concludes with a heuristic to guide the practitioner on what to do when their efforts at simplification are failing.

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Introduction—the Error of Simplicity

Ambiguity is ever-present in our world, but all too often we choose to ignore it. We assert the simple in lieu of the complex; the direct in lieu of the nuanced or the subtle; the label or category in lieu of recognizing the portfolio of choices that label/category represents. This article will argue that *how* we choose to deal with ambiguity is itself a design choice. Often, the response to ambiguity is to simplify. Yet many times simplification is *inappropriate* – it leads to outcomes that are poorly suited to the situation at hand. It is a pattern we cannot seem to break. Yet we do not go through life overwhelmed by the apparent complexity continually confronting them – instead, we make choices about what to handle, what to perceive, and which questions to ask. We often choose to assert the simple over the complex. We then act based on the simplifications we have chosen, regardless of their *appropriateness*.

> "Finally, we are learning that simplicity equals sanity."[1]

> "Much of our human mental life looks to involve a seamless unfolding of perception, action and experience: a golden braid in which each element twines intimately with the rest."[2]

> "In our endeavor to understand reality we are somewhat like a man trying to understand the mechanism of a closed watch.… He will never be able to compare his picture with the real mechanism and he cannot even imagine the possibility or the meaning of such a comparison."[3]

> "The business of a philosopher is primarily to make clear what is happening in thinking."[4]

Thinking frames are designs. We create them for a purpose, and they can be evaluated accordingly. An emphasis on simplification is a rather poor design choice, as it blocks rather than encourages dialogue and learning. Chimamanda Ngozi Adichie's presentation "The Danger of Single Story" has become one of the 20 most viewed TED talks since the platform's inception.[5] In it, she warns of the dangers of over-simplification – by focusing on simplifying, we are forced to use blinders, and that which we do not see may be that which is most important.

When we perceive the world as coherent – as holding together and making sense – we have the ability to assume our situation, and get on with things. The nuanced complexity of the world in which we operate can threaten that notion of coherence. When our perception of coherence is shattered, we continually have to ask questions, and we worry about our inability to find answers we can believe in. We react to that loss of assurance with a loss of self-confidence – we revert back to whatever coherence we can find. At that moment, our first instinct is to simplify.

We make sense of the world through explanation. Retrospective explanation is used as the basis for prediction, and upon such prediction we act. But "we are ruined by our own biases. When making decisions, we see what we want, ignore probabilities, and minimize risks that uproot our hopes."[6] Our minds dislike ambiguity and doubt. Instead, we have an ingrained desire to construct coherent narratives, which leads us to seek confirming evidence, while disregarding information that refutes our prior view – an inclination known as *confirmation bias*. What results is a confidence in our understanding which may be greater than the circumstances warrant, and a further confidence in the simplifications we have chosen – on which we then base our actions. That excess confidence is a problem. It can block our solving a problem – or even our perceiving one – and it can block our access to the

1 John Maeda, *The Laws of Simplicity: Design, Technology, Business, Life* (Cambridge, MA: MIT Press, 2006), eBook, front matter.

2 Andy Clark, "Perception, Action, and Experience: Unraveling the Golden Braid," *Neuropsychologia* 47, no. 6 (2009): 1460.

3 Albert Einstein and Leopold Infeld, *The Evolution of Physics: The Growth of Ideas from Early Concepts to Relativity and Quanta* (New York: Simon & Schuster, 1938), 31.

4 Richard Bevan Braithwaite, *Scientific Explanation: A Study of the Function of Theory, Probability and Law in Science*, vol. 515 (Cambridge: Cambridge University Press, 1953), 368.

5 Chimamanda Ngozi Adichie, "The Danger of a Single Story," *TEDGlobal* (video), July 2009, accessed June 18, 2016, https://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story?language=en.

6 From Daniel Kahneman, *Thinking Fast and Slow* (New York: Macmillan, 2011), as quoted in Dennis Berman, "So What's Your Algorithm?" *Wall Street Journal*, January 4, 2012, accessed June 18, 2016, http://www.wsj.com/articles/SB10001424052970203462304577138961342097348.

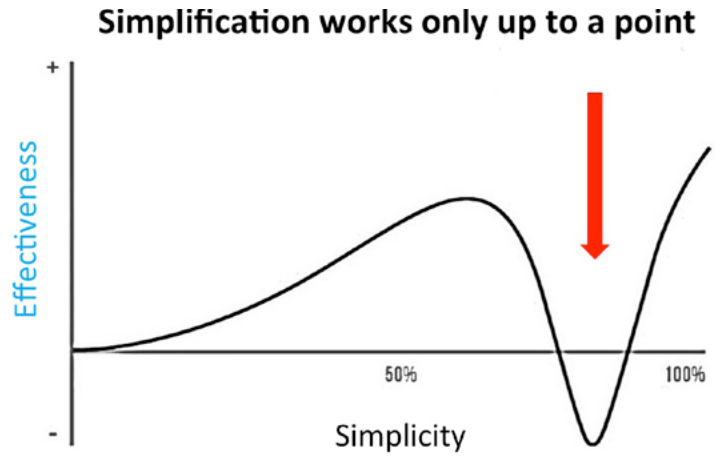

Figure 1 Limits to Simplification. Image © 2016 by Michael Lissack.

innovative next thing. Our failure to recognize that there is a trade-off between relying on simplifications and our ability to exploit the many opportunities that a given context provides means that all too often we accept satisficing when something better lies just around the corner.

What Is Wrong with Simplicity?

"Everything should be made as simple as possible, but not simpler."[7] "The goal … is to make the wonderful and the complex understandable and simple, but not less wonderful."[8] "If the result is only partially rewarding this can be wholly blamed upon … the complexity of the real world."[9]

The choice of simple models can be many a person's undoing. When too much simplicity is opted for, Simon's "wonderful" can be woefully compromised. Models based on labels, descriptions, and categories we shall refer to as *representations*. More nuanced models involving stories, multiple algorithms, rules of thumb, questions, and ambiguity we shall refer to as *compressions*. Compressions capture nuance and context in a manner that representations cannot. A person's use of a simple representation can thus mask much of what might be important regarding both coping with the given context and the changes that may be required to cope with the next and future contexts. The "wonderful" is in the context – not in the restrictions placed upon it.

The result is that simplifications are useful only up to a point, and then their utility takes a precarious turn downwards. When the demands for meaning require more content and/or context than the existing (simple) representation offers, it becomes difficult for other people to process a simple representation in the same manner as its speaker does. The simple representation loses *appropriateness* – it is not what the situation requires – and its ability to be effective diminishes. If one attempts too much simplification, the resulting representation can be trapped in a chasm of dissonance as shown by the red arrow in figure 1. In summary, when compressions are appropriate to a given situation – when nuance, subtlety, and context matter – the aggressive use of a simple representation often leads to disagreements and dissonance amongst your audience. That dissonance, in turn, creates a hostile environment for effectiveness (see figure 1).

Simplicity can be seen in the tendency people have to assert *labels* – representations – instead of defining *models* – compressions – and to identify *best practices* – representations – rather than explore *affordances*[10] or the *adjacent possibilities* of their context.[11] The mistake is one of attributing cause to category when identity is undetermined, uncertain, and undefined – which instead suggests a need to identify mechanism, and exposes the reality that the representation is likely to

7 This statement is popularly attributed to Albert Einstein.

8 Herbert A. Simon, *The Sciences of the Artificial,* 3rd ed. (Cambridge, MA: MIT press, 1996), x.

9 J.D. Sargan, "The Danger of Over-Simplification," *Bulletin of the Oxford University Institute of Economics & Statistics* 19, no. 2 (1957): 178.

10 James J. Gibson, "The Theory of Affordances," in *Perceiving, Acting and Knowing: Toward an Ecological Psychology*, ed. R. Shaw and J. Bransford (Hillsdale, NJ: Erlbaum, 1977); James J. Gibson, *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979); Joanna McGrenere and Wayne Ho, "Affordances: Clarifying and Evolving a Concept," in *Graphics Interface Proceedings*, vol. 2000 (Montreal: Interaction Design Foundation, 2000), 179–86.

11 Stuart A. Kauffman, *Investigations* (Oxford: Oxford University Press, 2002).

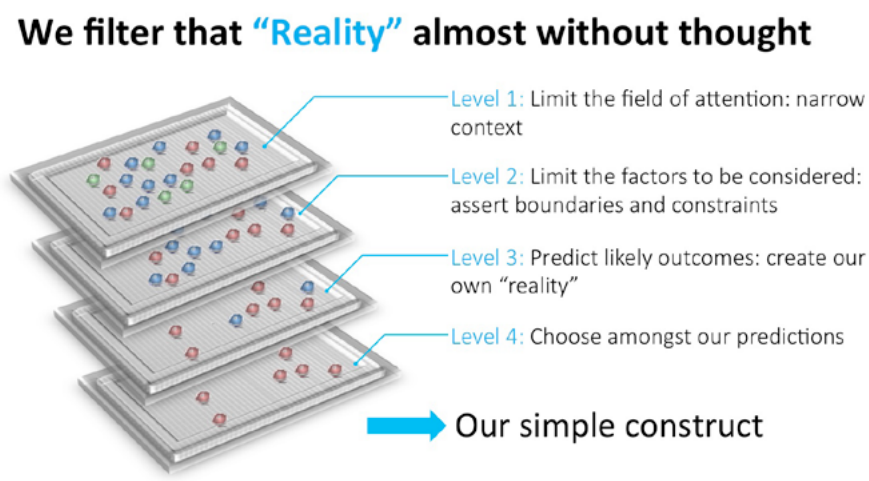

Figure 2 The process of reality filtering. Image © 2016 by Michael Lissack.

be inadequate. Only if one has well-earned confidence in one's descriptors does it make sense to use them to analyze a situation.

Metaphors and analogies may be fascinating and tantalizing, but they are very uncertain and questionable. If we want to *model* a situation, we need to be sure of the definitions, identities, and terms we make use of. And if we wish to assert that a representation holds true for a given situation, we must attempt to match the context of the representation to the situation actually at hand. No such epistemic care is normal in everyday life. Labels are all too quickly assumed to be accurate depictions of reality.

When simplicity isn't obvious—when it doesn't just present itself to us—we create it. Sometimes, if not most of the time, the simplicity we deal with is actually our own construction—a product of our own heads. We see the world. We process the world. But the way we process it is to tell a story that makes sense of what it is we think we see, of what it is we think we need to deal with. And, most of the time, we tell a simple story. We say the world is X, or Y, or Z—these are our labels.

To express that the world is "X," we filter the reality that we see. How? First, we limit our field of attention. We narrow the context of whatever we are dealing with. Then, we limit the factors to be considered. We assert a set of boundaries and constraints. Then we predict likely outcomes, given the boundaries and constraints that we have just imposed. In effect, at this point, we have actually constructed multiple realities in our heads. Finally, we pick amongst those multiple realities. By choosing from amongst our predictions, we have taken the complex, complicated reality that we first encountered and turned it into a simple construct. That construct becomes the story we tell—the narrative that we use to explain the situation to others and to ourselves. This process is illustrated in figure 2.

In creating that construct we are making choices, and those choices need to be explicitly recognized. We can choose to recognize and deal with the multiplicities of meaning that ambiguity evokes, or we can choose to deny those same elements. We can choose to incorporate a degree of ambiguity if we deliberately give room for the observer/actor/participant to include some of their own meaning in a given situation. By opting for the combination of ambiguity plus a label, we create the equivalent of a *Black Box* (figure 3)—a hidden mechanism into which a variety of meanings can be ascribed and then used as *explanations*.

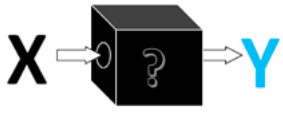

Figure 3 A Black Box. Image © 2016 by Michael Lissack.

This Black Box is not the one found on an airplane—which collects as much data as possible. Instead, it is a set of words, a sign, or a description that we use to simplify how we talk about some bigger thing. We use Black Boxes because we can use them like shorthand, instead of having to spell out the details of a bigger thing. Quite often we use Black Boxes because they allow us to take a shortcut—by

referring to the Black Box we can avoid having to actually learn the details of that bigger thing.

Models – both representations and compressions – can be thought of as shortcuts and abstractions. Rosenblueth and Wiener[12] argued that the key to understanding lay in abstraction. Deutsch opens with: "Men think in terms of models."[13] Hutten continues: "The model prescribes a context … used to provide an interpretation of new phenomenon."[14] Though the provisionality and contingency of all models is well known, popular culture persists in utilizing the special case of representations as if they were more than they are. In effect, category attributions are given a power they do not deserve. If we need a way of reducing the world enough that we can cope with it and act in it, then the use of labels helps people to have an actionable view of the world. In everyday life, words and phrases often emerge from concrete situations in which participants jointly work out ways of describing what is going on. New terms, symbols, or images are *situated* – they acquire meaning through collective use in real situations.[15] Labels play a very valuable role in limiting complexity. Instead of discussing the multiplicity embodied by compressions, the simplicity of a crude model and a few labels – in the form of representations – is often preferred.

Another way to say this is that models are partial truths – they partially reflect some aspects of reality. Good models have well-defined relationships to reality so that we know how and when to use them. This means that we recognize which aspects of the model are related to which aspects of reality. This is not piece-by-piece correspondence, but behavior-by-behavior correspondence. Our use of models is clearly not only a property of the model, but also a property of our (incomplete) understanding of the relationship between the model and reality. To the extent that people base their actions on labels, without a continual cross check with reality, coherence is threatened. To the extent that people encourage dialogue about that cross check, coherence can be enhanced. Such a dialogue demands the recognition that compressions are not their labels, that ascribed substitutions can be threatening, and that Black Boxes are just that – a device for increasing degrees of freedom and reducing fragility – in other words, an explicit recognition of ambiguity.

Usually, people's representations take the form of rule-based checklists and of Deming-inspired statistical controls, both of which assume that the labels and underlying models have permanent validity. A stasis to the world is assumed but seldom exists. Such a stasis assumes that opportunities for action are predictable, context is controllable, and emergence is non-existent. Yet the world of practicing people does not match these oversimplifications. Prediction, at best, is only possible in the short term. Boundaries are always shifting. Identities are unclear. As Heisenberg told us: "The world is not divided into different groups of objects but rather into different groups of relationships.… The world thus appears as a complicated tissue of events, in which connections of different kinds alternate or overlap or combine and thereby determine the texture of the whole."[16] The trade-off between outcome and process does not favor one over the other. In the world we live in, emergence is pervasive, context is seldom controllable, ecologies are emergent, and few affordances are predictable. Situation and context play key roles. In the complex world of organization, continuity is but a fragile, temporary, and illusionary notion – the assumption of predictability does not hold.

By making assumptions – and in so doing, restricting ourselves to a set of labels and a model – we predetermine what might be learned, which will limit the options that appear to be open to us. This is because by adopting a particular perspective – and therefore making assumptions consistent with that perspective – we limit what we can see. "We often fail to allow for the possibility that evidence that

12 Arturo Rosenblueth and Norbert Wiener, "The Role of Models in Science," *Philosophy of Science* 12, no. 4 (1945): 316–21.

13 Karl W. Deutsch, "Mechanism, Organism, and Society: Some Models in Natural and Social Science," *Philosophy of Science* 18, no. 3 (1951): 230.

14 Ernest Hirschlaff Hutten, "The Role of Models in Physics," *The British Journal for the Philosophy of Science* 4, no. 16 (1954): 295.

15 D. C. Gooding and T. R. Addis, "Modelling Experiments as Mediating Models," *Foundations of Science* 13, no. 1 (2008): 17–35.

16 Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science* (London: Allen and Unwin, 1959), 107.

should be critical to our judgment is missing. What we see is all there is."[17] The perspective acts as a lens that only allows particular features to come into focus – all other features are lost, or assumed to be irrelevant. Furthermore, in communicating with others, by making use of a particular viewpoint, we limit our and their ability to see what is relevant. The problem with ascribing a label, and using it as our method of explanation, is that once we have ascribed it – "this belongs to Label X" – then that explanation is done. The assertion is that the representation holds. Implicitly, it is further asserted that the complexity and degrees of freedom found in compressions are unnecessary. "I am a 'nice' person. Nice people do X. I must do X." There is no room in this equation for context. The representation is assumed to govern.

In our use of representations, we have a tendency to demand coherence – a unity, or oneness – between the situation, people, process, et cetera to which we are applying the representation, and our understanding of the meaning of the representation itself.[18] When we observe a mismatch between our understanding of the representation and the target of our use, we seek to demand a correction – otherwise we risk suffering cognitive dissonance. This notion of a mismatch is critical to understanding what is wrong with our emphasis on simplicity.

An exemplar of this kind of mismatch can be found in the New York City police raid on the Fook On Sing Funeral Supplies store in August, 2011.[19] Fook On Sing Funeral Supplies is a well-known Chinatown establishment where members of the Chinese community go to acquire expertly crafted paper replicas of items which where symbolically important to their recently departed. The paper replicas are burned on a funeral pyre – at no time would they be used as if they were a substitute for the real item. Yet on that fine August day, Wing Sun Mak, the proprietor of Fook On Sing Funeral Supplies, was arrested for selling counterfeit Louis Vuitton handbags. Paper counterfeits. To be burned at the cremation of the dead. Because they were, after all, counterfeits. Yes, the label – the representation – fit. But the compression, the story, and its context did not. *Ascriptive coherence* – how well a situation matches a label – suggested that the paper handbags were contraband. *Experienced coherence* – how well the elements perceived *are attuned to* the situation at hand – told a very different story. The police did not have a sufficient level of ambiguity built into their understanding of the label 'counterfeit.' The representation lacked sufficient degrees of freedom to account for the nuance of the actual situation – and so it failed to serve as an adequate guide to reality.

It is critical to realize that many situations demand some ambiguity – a little wiggle room. When there is a mismatch between the degrees of freedom required to account for a given situation's nuance, and the degrees of freedom provided by a given representation, there is a tendency for error to occur. That which should not be viewed rigidly will be so viewed, or vice versa. In cybernetics there is a law regarding this need for balance – just enough ambiguity and degrees of freedom, not too much, not too little – called the "law of requisite variety."[20] Failure to pay attention to this law can mean that either a system is unable to be controlled or guided – usually when the system has more degrees of freedom or ambiguity than its supposed controller – or, that attractive possibilities will get overlooked because they happen to fall outside of a definition drawn too narrowly.

People make this kind of error far more often than the police. When the focus is on efficiency, in order to assure coherence, we create lists and provide codes that keep us tied to the ascribed meanings.[21] We sanitize out the ambiguous and the unexpected. We look for confirming evidence, and eliminate outliers as so much noise. Indeed, there are times when efficiency and strict adherence to codes and checklists are absolutely essential – for example, we want the products we order to arrive on time with excellent quality. We want our computers to operate without

17 Kahneman, *Thinking Fast and Slow*, 87.

18 That demand for coherence is the focus of the much of the literature on the subject. For example, see Paul Thagard, *Conceptual Revolutions* (Princeton: Princeton University Press, 1992); Paul Thagard, *Coherence in Thought and Action* (Cambridge, MA: MIT Press, 2000); and Hugo Letiche, Michael Lissack, and Ron Schultz, *Coherence in the Midst of Complexity: Advances in Social Complexity Theory* (Basingstoke, UK: Palgrave Macmillan, 2011).

19 Jeffrey E. Singer and Corey Kilgannon, "Yes, He Sold Fakes. They Are Supposed to Be Fake," *New York Times*, August 24, 2011, accessed June 18, 2016, http://www.nytimes.com/2011/08/25/nyregion/chinatown-funeral-goods-bring-copyright-infringement-arrest.html?_r=0.

20 W. Ross Ashby, "Requisite Variety and Its Implications for the Control of Complex Systems," *Cybernetica* 1 (1958): 83–99.

21 "Codes" here means a word or label that can be mapped on a one-to-one basis to a specific meaning, usually via what is called a "look-up table."

the need for error messages, and our baggage to arrive at the same airport and time as we do. If efficient codes have produced a positive experience before, we may want the next experience to be just like the previous one. Measured coherence, and the establishment of procedure to enforce it, is integral to how much of our world operates. That efficiency is, however, the epitome of Taleb's[22] notion of fragile, and the opposite of the lessons to be gleaned from hermeneutics.

> "Hermeneutics holds the promise of fundamentally altering the way one thinks about interpretation, understanding, and the communication of culture… interpretation must be a matter of constant revision: revising one's sense of the whole as one grasps the individual parts, and revising one's sense of the parts as the meaning of the whole emerges."[23]

Wing Sun Mak's counterfeits satisfied all of the definitions contained in the label 'counterfeit,' while their use and intent satisfied none. The police model of what constitutes a counterfeit was vastly different from that understood by those who purchase Chinese funeral objects. Yet the explanatory form of a label can be supplanted by the situated reality of a good story, or a better compression.

Computers rely on efficiency's form of coherence. To a computer, coherence is the degree to which an item matches a definition, or matches a set of items having observable qualities that match one another. Computer coherence is about measurement. Coherence of this kind is not created – it is assigned, ascribed, and measured. This is the coherence of efficiency – *ascriptive coherence*. Coherence grounded in efficiency has no room to consider context, history, and situation. Efficient coherence demands a context of stability. The (more complex) *experienced coherence*, on the other hand, entails a process of finding stability in context. Without reliance on the former, efficiencies are difficult to create and exploit. Without an awareness of the latter, life passes us by and crises descend seemingly from nowhere. Miracles happen when context, history, and situation combine in a fortuitous way – nasty surprises occur when context history and situation combine in an unfortunate way. In this case, the predictions based on efficiency's coherence did not pan out. The Fook On Sing Funeral Supplies raid made the New York police look foolish.

Risks in Our Preference for the Simple

Simplification is a form of reality creation. We each have cognitive limits, and cannot process all the information that is present in the world around us. We have to pick and choose what to pay attention to, what to allocate energy and effort to, and what to ultimately deal with. We call the result of these choices 'reality,' but that reality is only a subset of the swirl of items, information, people, and environments around us. We make choices so that we can cope (see figure 4).

As Richard Rorty told us: "Knowledge is not a matter of getting reality right … but rather a matter of acquiring habits of action for coping with reality."[24] How we cope is critical to our retaining the ability to act. Simplification is one powerful form of coping. Yet it has great potential for leading us astray.

We have to make assumptions; it is unavoidable. Nonetheless, it is important to appreciate the significance of doing so. When people learn to rely on labels and simplistic interpretations, they also learn to discount stories and emotions, which are not so easily described in term of rationality and linearity. When people find that the world is best dealt with through compartmentalization or reductionism, they tend to think that it is OK to deny the reality of interrelationships or the multiplicity of interpretations that exist whenever that *situatedness* is acknowledged. When people learn that abstract quantitative models contain 'truth,' they are being

22 Nassim Nicholas Taleb, *The Black Swan* (New York: Penguin Random House Trade, 2007).

23 Hans-Georg Gadamer, "On the Circle of Understanding," in *Hermeneutics versus Science*, ed. John M. Connolly and Thomas Keutner (Notre Dame, IN: University of Notre Dame Press, 1988) as quoted in Paul Kidder, *Gadamer for Architects* (New York: Routledge, 2013), 3.

24 Richard Rorty, *Objectivity, Relativism, and Truth: Philosophical Papers*, vol. 1 (Cambridge: Cambridge University Press, 1991), 1.

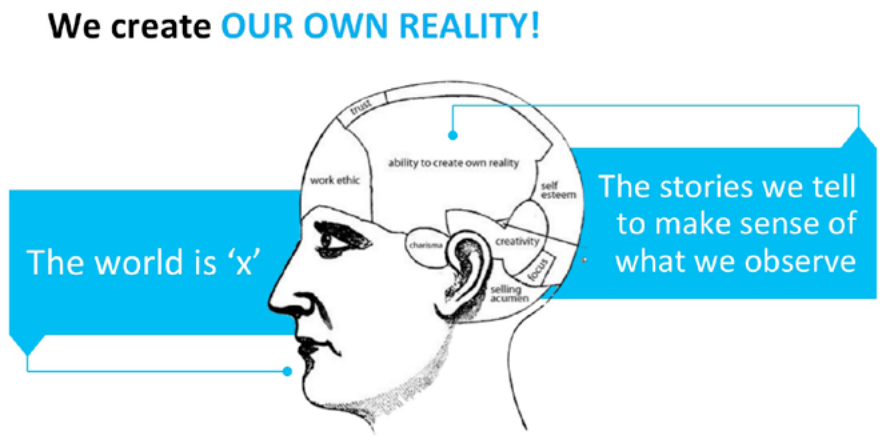

Figure 4 Our own reality. Image © 2016 by Michael Lissack.

taught that truth does not include individuality, weak signals, embodiment, or context. People can find solace in simplistic models that promise protection from unpredictability and an excuse to not have to think.

Politicians take advantage of this solace preference when they speak in simplistic ways about their plans for the future. Brands take advantage of this preference when showing us idealistic pictures of 'how things could be' if only we made use of brand x or y or z. Both politicians and brand managers are themselves making another simplification – none of us, voters or consumers, are individuals. Instead, we are representatives of some market segment. We each represent one member of an undifferentiated mass that gets a label and then is managed as if the label were all that mattered. Retail used to mean catering to an individual. In the present age, it means catering to representatives of labeled, homogenous segments. Supposedly, labels vote and labels buy. Or at least that is the simplification used daily by the brands and the pols.

Labels and categories eliminate individual variations of specific items. The substitution of a label for a thing itself thus simplifies the world. Labels form a very valuable role in limiting the world. Instead of actively discussing the multiple approaches that may all be interpretations, enactments, or embodiments of a model, people often act as if there is but one or perhaps two interpretations. These 'privileged' interpretations are given status as names, labels, or symbols – and the labels are then used as guides for action.

People deal with the surfeit of information, complexity, and anxiety in their worlds by compartmentalizing and modeling: "If we can model it, we can manage it." The very existence of the model is taken to mean that the model is appropriate for application. Do what the model says – complexity will be reduced, and anxiety lessened. It is often blindly assumed that the models are correct, and that they somehow capture what is important for decision making. In other words, we can apparently accept a model's reifications without concern.

"Why models? Because the inanimate world is filled with quasi-regularities that hint at deeper causes. We need models to explain what we see and to predict what will occur. We use models for envisioning the future and influencing it."[25] If one wants to 'model' a situation, one needs to be sure of the definitions, identities, and terms of use one is making use of. Again, if one wishes to assert that a representation holds true for a given situation, one must attempt to match the context of the representation to the situation actually at hand. Derman continues: "Theories and models are a kind of magic, and the builders of successful ones, are shamans bridging the visible and invisible worlds."[26]

Static descriptions are not *true models*. They do not provide any opportunity for us to simulate potential changes – we cannot ask "*What-If*?" and What-Ifs are

25 Emanuel Derman, *Models. Behaving. Badly.: Why Confusing Illusion with Reality Can Lead to Disaster, on Wall Street and in Life* (New York: Free Press, 2011), 43.

26 Derman, *Models*, 43.

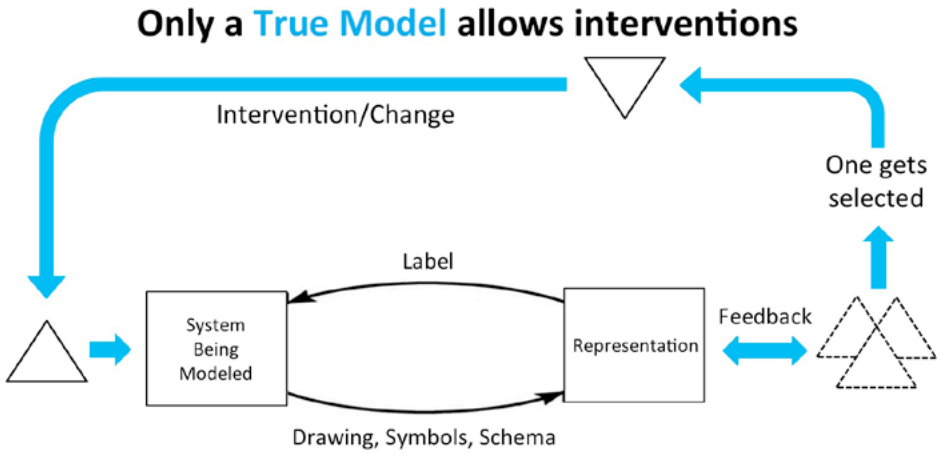

Figure 5 A true model. Image © 2016 by Michael Lissack.

essential before committing to action. The flow chart for a true model is shown in figure 5. True models allow What-Ifs to be simulated, and include a means for any selected What-If to be implemented. By allowing ourselves to conflate the meanings of the words 'description' and 'model,' we have lost the distinction that makes the difference – only true models help you plan or simulate potential interventions. Descriptions cannot. True models explicitly describe how such interventions are possible. More importantly, true models allow us to experiment by simulating what might happen in the representation before we actually attempt to intervene in the system itself.

The experiments we run or simulate are shown in the triangles to the right. As we run experiments we simulate the What-If, and we see what happens under various scenarios. This is shown by the feedback arrow. We then pick one of the courses of action from our experiments and we attempt to implement it. If our model is a good model, then the intervention in the system will behave in a manner predicted by the experiment in the model. The better the match between what the model predicts and what actual interventions produce, the better the model.

With a true model, we can run the mental experiment many times before we choose to act. A description offers no such luxury. Intervention points may be identified in a static description, but they cannot be acted upon without engagement in the system itself. True models allow us to test casual explanations. Descriptions only allow for theories of cause to be asserted. When a description is offered as an explanation, its success is almost completely dependent upon the idea that the future will mirror the static past captured within the description itself.

Explanations are the basis of the decisions and actions that follow them. When people *enact* the environment, Weick claims, "they construct, rearrange, single out, and demolish many 'objective' features of their surroundings. They unrandomize variables, insert vestiges of orderliness, and literally create their own constraints."[27] In other words, they attempt to reduce the world to their model and labels. In so doing, they are making design choices that fail to reflect their own nuanced environment and instead demand coherence to a simpler exogenous model. Sometimes this approach works. Often, it does not. But note – both success and failure are rather clear-cut when they occur. The design choice for simplicity seldom leaves room for a middle ground.

Here is where the risk of using the wrong kind of explanation manifests itself as poor decisions and inappropriate actions. The language we each use to describe our surroundings predetermines what we see. As Kuhn put it: "You don't see something until you have the right metaphor [model] to let you perceive it."[28] Or as suggested by Srivastva and Barrett,[29] naming implies anticipations, expectations,

27 Karl E. Weick, *Sensemaking in Organizations: Foundations for Organizational Science*, vol. 3 (Thousand Oaks: SAGE Publications, 1995), 30–31.

28 Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 2nd enl. ed. (Chicago: University of Chicago Press, 1970), 48.

29 Suresh Srivastva and Frank J. Barrett, "The Transforming Nature of Metaphors in Group Development: A Study in Group Theory," *Human Relations* 41, no. 1 (1988): 31–63.

Figure 6 Two concepts, one expression. Image © 2016 by Michael Lissack.

and evaluations toward the named. By making assumptions – and in so doing restricting ourselves to a particular or one method of interpretation – we predetermine what might be learnt, which will limit the options that appear to be open to us as people. Indeed, one typical strategy for dealing with the complexity around us is to attempt to categorize what we encounter, and draw boundaries around what we are willing to deal with. The rest we ignore. The act of boundary setting, like the act of categorizing, is one of brute force. Items, events, people, contexts, interactions are either 'in' or 'out.' At best, there are degrees of being in or out. Bureaucratic and industrial activity depends on boundaries and routines to exist. They are label-driven – their efficiency requires boundary-setting. Often the boundaries are defined in models used to determine which label is to be placed onto which situation.

It is rare that we all agree on an identical set of labels, and adopt the same model. Often, two or more stories emerge to describe a situation, as shown in figure 6. We learn to co-interpret and jointly share circumstances. Stories we have heard and explanations that we have received make circumstances recognizable and sensible. People, politicians, healthcare professionals, teachers, and so on may like to assume that what their audiences hear is what they think they are communicating, but their labels often can be experienced every which way. Many like to treat their labels as if context and situation did not exist, and the labels were mono-interpretable. Thus, the nub of the personal problem – to choose a label is to limit one's possibility space or degrees of freedom, choices and boundaries, and it imposes a set of constraints. If the limitation works in the present environment – if it leads to the desired results – then all is well for the moment. By imposing limitations, we risk compromising our potential. In effect we are treating the world as a metaphor, but as a metaphor for what?

"Metaphors do not exist as words in memory, but as networks of abstract understandings that constitute part of our mental imagery."[30] These networks of abstract understandings are inherently ambiguous. They function like a Black Box with multiple degrees of freedom. The fusion of memory, metaphor, and story enables the creation of meaning around, or personal relevance in, a specific affordance or set of *affordances*. Affordances are the joint property of an actor, that actor's at-the-moment cognition, the environment, and a purpose. When we desire to sit, and we see a surface that our cognitive history allows us to perceive as providing the opportunity to be sat upon, then to us at that moment the surface *affords* the opportunity for sitting. If the surface was composed of potato chip bags, and we had an awareness of our own weight, we might question the existence of the

30 Gerald Zaltman, *How Customers Think: Essential Insights into the Mind of the Market* (Cambridge, MA: Harvard Business School Press, 2003), 89.

'sitting' affordance – a question we would not have regarding a wooden surface, but might have regarding a bed of nails. Affordances have a special relationship to metaphors, in that metaphors are the principal means by which we recognize an opportunity as an affordance for something. When we are exposed to metaphors, stories, and memories, we don't passively absorb such messages. Instead, we create their meaning by mixing information from the context with our own memories, other stimuli present at the moment, and the metaphors that come to mind as we think about the affordance being attended to.[31]

The policemen who made the Fook On Sing arrest made no use of their ability to re-interpret the situation to fit the context. Instead, they accepted the literal rules told to them – without metaphorical thinking, and without any attempt to create their own meaning. As the *NY Times* article noted, "yes they sold fakes … that was the whole idea."[32]

The risks we face in relying on simplicity are not limited to the idea that our explanations are wrong. So too may be the actions/decisions based upon them, which also includes the possibility that in our reliance upon a fragile simple model lacking in degrees of freedom, we will be unable to perceive or attend to adjacent possibles[33] and useful affordances. This latter risk speaks directly to our ability to cope with change, prosper with emergence, and innovate.

Assigning Meaning is Itself a Design Choice

The choice of how to declare and assign meaning is one each of us makes nearly all the time. In making these choices, we are, in effect, designing the reality with which we cope. We tend to be oblivious of the process we use in making those choices. Husserl[34] referred to that obliviousness as the basis for what he called the *fundierung* relation – that which underlies the possibility for an action, yet is taken for granted and not spoken of. The classic example is that when one is writing with a pen, one's attention is on the content being written and/or on the act of writing, and is NOT on the mechanisms of the pen that allow the writing to occur.[35] Our assertions of simplicity are often made without regard to the implications of this *fundierung* relation. Making simple representations means we can bracket away ambiguity and remove it from the immediate discussion. We know that doing so has been very successful in many contexts, and that it is much easier to make data-like claims about the simple, and that making use of the simple allows us to assert direct causality.

When we cite a metaphor, we focus on the apparent similarities. In doing so, we seemingly forget that the assertion of the metaphor also creates a parallel but overlooked focus on differences. This forgetting parallels the *fundierung* of simplicity – which is to state that we are indeed making a choice to ignore nuance, context, prior habitus, affordances, emergence, and adjacent possibles. Picking simplicity as a representation is a choice even if we often forget to treat it as such.

The consequences of this choice can be seen in the following series of quotes:

- "We take up only those actions and solutions that have an immediate effect on the situation, and always as they have been framed for us."[36]
- "We, therefore, fail to note important items in plain sight, while we misread other facts by forcing them into preset mental channels, even when we retain a buried memory of actual events."[37]
- "Interpretations can be considered as 'having made sense' out of a situation. Having made sense out of it means that ambiguities have been removed, and so action is possible. By contrast, when there is a lack of sense making, when multiple interpretations are flourishing, ambiguity prevails and action avoidance is the normal result."[38]

31 For example, see Zaltman, *How Customers Think.*

32 Singer and Kilgannon, "Yes, He Sold Fakes."

33 Kauffman's term for those possibilities which lie very near our present state. John Brockmann, "The Adjacent Possible: A Talk With Stuart Kaufmann," *edge.org*, last modified September 9, 2003, https://www.edge.org/conversation/stuart_a_kauffman-the-adjacent-possible.

34 Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy—First Book: General Introduction to a Pure Phenomenology*, trans. F. Kersten (The Hague: Nijhoff, 1982).

35 For example, see Gian-Carlo Rota, "Fundierung as a Logical Concept," *The Monist* 72, no. 1 (1989): 70–77.

36 Massimo Piattelli-Palmarini, *Inevitable Illusions: How Mistakes of Reason Rule Our Minds*, trans. Massimo Piattelli-Palmarini and Keith Botsford (New York: John Wiley and Sons, 1994), 58.

37 Stephen Jay Gould and David Halberstam, *Triumph and Tragedy in Mudville: A Lifelong Passion for Baseball* (New York: WW Norton, 2004), 223.

38 Michael Lissack and Johan Roos, *The Next Common Sense: Mastering Corporate Complexity Through Coherence* (London: Nicholas Brealey Publishing, 1999), 54.

- "All cultures have ways of dealing with these anomalies and ambiguities. One way to deal with ambiguity is to classify a phenomenon into one category only and maintain it within the category, thus reducing the potential for uncertainty. Another method of dealing with anomaly is to physically control it, removing it. A third way is to avoid anomalous things by strengthening and affirming the classification system that renders them anomalous. Alternatively, anomalous events or things may be labeled dangerous."[39]
- "The object of the world of ideas as a whole is not the portrayal of reality – this would be an utterly impossible task – but rather to provide us with an instrument for finding our way about more easily in this world."[40]
- "The only meaningful thing is the usefulness of the model.… When such a model is successful at explaining events, we tend to attribute to it, and to the elements and concepts that constitute it, the quality of reality or absolute truth."[41]

In the first quotation, Piattelli-Palmarini and Gould focus on the immediacy of what we choose to process, while Lissack and Roos highlight the importance of making sense as establishing the boundary which encloses that processing in the second. What we choose to see will affect what we then pay attention to, which then affects the processes we call upon to make sense out of those attended to items. As Lupton points out in the third passage, we then need to "clean up" the attended to data and its resulting story – remove the anomalies and ambiguities, and leave behind a "simple story." When this succeeds, it is "as if" our simple story was the very reality we need to deal with, as Hawking and Mlodinow describe in the final quotation. But, we must remember the lessons from Vaihinger, in the fourth quotation, and Rota[42] – our simple story is the result of choice we make and have made. We always have the option of making different choices – but the reality we deal with will be the one we choose to deal with.

The key to such choices is *appropriateness*. So just what does this seemingly all-powerful word *appropriate* actually mean in this context? It turns out that *appropriately* gets defined by how well the Black Box or story you are using meets three tests:

1) Do you have a model or merely a description? This tells you whether you have given the listener an opportunity for action in your narrative.
2) Are you generating resonance? This tells you whether your Black Box or story matches both the context and the understanding of the listeners.
3) Is the story, Black Box or label complex enough? Or perhaps too complex? Getting the balance right is critical.

While simple representations are constrained by pre-established meanings, cues, affordances, and similar, compressions are free of such constraints. Affordances suggest that meaning is contained inside us. As Maeda[43] puts it, "What lies in the periphery of simplicity is definitely not peripheral." When we encounter a signal, the signal evokes a meaning based on what's going on in our – the receivers' – heads, and is not based on what the transmitter of the signal intended. We refer to these signals as *cues*. The inability to define the environment in which a signal will be interpreted, and the parallel inability to predict affordances, are what render cues complex and their study part of qualitative complexity. Cues are thus the label for the emergent meaning which results from an intersection of attendance to environment, situation, history, and cognition, such that semiotic affordances are perceived to allow for 1) action, 2) assignment of cognition, label, or code, or 3) boundary breaking. Compressions are cued while representations are mapped. Cues tap into experience while codes tap into ascription. Cues are situated and

39 Deborah Lupton, *Risk*, 2nd ed. (New York: Routledge, 2013), 62.

40 Hans Vaihinger, *The Philosophy of 'As If': A System of the Theoretical, Practical and Religious Fictions of Mankind, trans.* CK Ogden (London: Kegan Paul, Trench, Trubner, 1924), 15.

41 Stephen Hawking and Leonard Mlodinow, *The Grand Design* (New York: Bantam Books, 2011), 7.

42 Rota, "Fundierung."

43 Maeda, *Laws of Simplicity*.

contextual. Simple representations are ascriptive and conform to pre-established judgments. Taleb[44] refers to this cycle as the reification of a "narrative fallacy," which describes how humans are biologically inclined to turn complex realities into soothing but oversimplified stories. Black Boxes used in a successful story work because both their inputs and outputs are cues – cues that openly declare their ambiguity to context, and thereby allow the listener to imbue the Black Box with their own meaning.

44 Taleb, *Black Swan*.

45 Julian E. Orr, "Sharing Knowledge, Celebrating Identity: Community Memory in a Service Culture," *Collective Remembering* 169 (1990): 178–79.

Stories Can Be Our Salvation

Stories provide a broader framework that enables us to understand the generalities, or looseness, of ideas. Stories can be embedded in a new context, and the nuggets of knowledge contained in these stories can be applied to a new range of settings. As Orr[45] puts it: "The key element is the situated production of understanding through narration, in that the integration of the various facts of the situation is accomplished through a verbal consideration of those facts with a primary criterion of coherence. They do not know where they are going to find the information they need to understand and solve this problem. In their search for inspiration, they tell stories."

Intuition enables us to size up a situation quickly. Mental simulation lets us imagine how a course of action might be carried out. Metaphor draws on experience by suggesting parallels between the current situation and something else we have come across. Storytelling helps us consolidate our experiences to make them available in the future, either to ourselves or to others. The power of a story is that it allows the listener to recreate an experience in his or her mind. Too many details – too fine a point on things – remove the potency of the listener's imagination. Long before we had computers to run fancy simulation exercises on, we used our brains. Long before Disney, we had the Brothers Grimm. Stories are our models for thinking and for approaching reality.

What matters about a story is what the listeners do with it, not the smile it brings to the face of the teller in its one hundredth reincarnation. Listeners use the images evoked to create meaning – meaning that goes on to inform actions. When we tell stories and share 'languaging,' the changing context can bring us from raw experience to the possibilities and limits of shared consciousness.

Stories are among the best tools we have for making sense of our environment and getting comfortable with both what has already occurred and with what is yet to come. Storytelling is how we make sense. We tell them to ourselves and to each other. Without them, we can only exchange words as symbols or icons. If we all had precisely the same set of experiences, the mere sharing of words and icons would be enough. One word would have but one exact meaning. But we all have divergent experiences, and for each of us those experiences are woven together in a multitude of ways.

The good politician, like the good brand marketer, tells stories that evoke a response. Something in the story told resonates with the experiences of the listener strongly enough to motivate action. But, the key to such a response lies NOT in the story or the storyteller – it lies in the listener.

The power of a good story is in the experience it evokes in its listener. Most stories are set into a context by their tellers. That context reinforces images of place and time. By activating the listener's mental model for a time and place, many details need not be told, and the room is created for the listener's imagination to roam. In effect, the storyteller has carved out a canyon and the listener supplies the river of meaning to run through it. Each actor coming to the situation has his or her own set of representations and compressions, and is forced to react to the

assertions of boundaries and indexicals.

It thus is critical to remember that stories are not a collective response – they are not told by groups nor heard by groups. Each story has a teller. Each story has a set of individual listeners. To attempt to treat narrative and storytelling as the work of a collective is to apply yet another potentially fatal over-simplification. Each teller is unique. Each listener is unique. Computers may analyze text in a consistent manner, where context seemingly does not matter, but humans do not process information in that way. We can aggregate the reported labels that listeners and tellers may express to a third party, but that aggregate will not inform us about the individual experience of either teller or listener. And, it is that individual experience which matters.

Stories are not a set of labels. If they were, then as the labels were triggered, a predefined set of images would be unfolded by the listener. Every listener would hear and construct the same story. Children learn that this is not true when they play "telephone" or "operator" – the game where one listener repeats the whisperings of one speaker into the ear of another listener, who then whispers what he or she has heard into the ear of the next person in line. The children's game illustrates the new things that can emerge as stories are told and retold, a lesson that corporate people, however, tend to forget. The corporate chieftains tend to expect the same meaning to be evoked by their story as they retell it from audience to audience. They thus reduce story to representation. The chieftains miss what the children remember – in telling and retelling the same war stories, corporations often fail to ask their listeners about the images the story evoked. Listeners use the images evoked to create meaning – to build a model/compression which is situated around that present context – and that meaning that goes on to inform actions.

What a successful story does is to allow listeners to form a true model in their own mind. As noted above, true models are distinct from descriptive representations in that they explicitly allow for the simulation of change and interventions. The successful story will thus allow the listener to form a mental model where the possibilities for change can be explored, and where the listener also sees the possibility for implementation or embodiment of that change. Successful stories create affordances for personal resonance on the part of the listener. The resonance need not be about what the storyteller intends. Affordances are perceived opportunities for action – and what the listener perceives, and pays attention to, may be only tangentially related to the storyteller's main point. One of the powerful aspects of affordances is that they can be sparked by a cue, a tangent, a metaphor triggered inside the listener's head.

The context set out by the storyteller will conjure up a new set of related ideas in the minds of each listener. Meaning emerges from the combination of what the storyteller supplies and what the listener's mind adds. Stories suggest new images, combinations of old and new ideas, and allow the listener to place him/herself in a simulacrum of related action. Meaningful stories are not made up of isolated words – they also must evoke deeply held values and images. To offer up isolated words is to evoke a shallow stream of water in a hot desert – whatever value there is dries up quickly. The empty articulation of representations in the form of jargon – which is itself disconnected from the experiences of those who are forced to deal with that articulation – can lead to cognitive dissonance, or worse.[46] The proclamation of a label as being indexical can act to offend the self-identity of those who adhere to a different description or a different context. In metaphorical terms, where the successful storyteller has carved the canyon for the compression to run through, the articulator of idle representations has built a canal. . .and the river had other ideas. "People do not simply tell stories – they enact them."[47]

"What is necessary? The answer is, something that preserves plausibility and

46 For example, see Michael Lissack, "Second Order Science: Examining Hidden Presuppositions in the Practice of Science," *Foundations of Science* (2015): 1–17; and Michael Lissack, "What Second Order Science Reveals About Scientific Claims: Incommensurability, Doubt, and a Lack of Explication," *Foundations of Science* (2015): 1–19.

47 Brian T. Pentland, "Building Process Theory with Narrative: From Description to Explanation," *Academy of Management Review* 24, no. 4 (1999): 711.

> coherence, something that is reasonable and memorable, something that embodies past experience and expectations, something which resonates with other people, something that can be constructed retrospectively but also can be used prospectively, something that captures both feeling and thought.… In short, what is necessary in sense making is a good story."[48]

> "Our ultimate device for dealing with complexity and the other is narrative. We use narrative to rise above the local constraints of models. A narrative is not about the reality of a situation. Rather, the point of a story is to lay out in the open what the narrator suggests is important. Narratives are not about being objective, but are instead displays of subjectivity. A narrative is the representation of a compression, which is integrated at a higher level of analysis. Powerful narratives, like great pieces of music, feel as if they were inevitable when they are over, and we seem to agree on that. But note, even in a compelling story, the next line cannot be predicted. It is that feeling of inevitability that endows the great story with its ability to generate commensurate experience amongst independent listeners."[49]

Narrative can be, and often is, an instrument that provokes active thinking and helps us work through problems. Our need for narrative form is perhaps so strong that we don't really believe something is true unless we can see it as a story. Bringing a collection of events into narrative coherence can be described as a way of normalizing, or naturalizing, those events. It renders them plausible, allowing one to see how they all belong. This is a constant theme in the work of historian Hayden White: "The very distinction between real and imaginary events, basic to modern discussions of both history and fiction, presupposes a notion of reality in which 'the true' is identified with 'the real' only insofar as it can be shown to possess the character of narrativity."[50]

How we populate the narrative – characters, problems, context, details – matters. When the subject matter is in the realm of *things* or *abstract concepts*, coherence is achieved by minimizing deviance and variation from pre-established definitions and categories. But when the subject matter is more in the realm of people, coherence is better understood as a resonance or *fit* with the listener's own subjective experience. Because simplification tends to take the form of the *objective*, over-simplification produces its greatest dissonance when labels and categories are applied to people-based situations. This is the main take away from Adichie's TED talk.[51]

Wherever we look, we seek to grasp what we see. Narrative gives us this understanding. Accordingly, our narrative perception stands ready to be activated in order to give us a frame or context for even the most static and uneventful scenes. And without understanding the narrative, we often feel we don't understand what we see. We cannot find the meaning. But it is critical to recognize and acknowledge that the successful narratives we tell are themselves Black Boxes, and as such, they are open and ambiguous to others. To cite Maeda's tenth law: "Simplicity is about subtracting the obvious and adding the meaningful."[52]

The policemen's failure with Fook On Sing was to add back the meaningful. 'Being a fake' was not the source of meaning, 'intended to be burned on a funeral pyre' was. The police lacked the personal stories that allowed them to see past the literal. This is what Adichie means by the "Danger of the Single Story." In design, economics, and innovation, that same possibility awaits each of us. When our personal repertoire of stories lacks the depth or breadth to be appropriate for a given situation, that lack needs to be taken as a warning sign. The correct approach is seldom to accept the blinders that our personal experience limits us to. Instead, we must seek ways to see past the blinders – to find new frames, and to tell new stories.

48 Weick, *Sensemaking*, 60.

49 A.J. Zellmer, T.F.H. Allen, and K. Kesseboehmer, "The Nature of Ecological Complexity: A Protocol for Building the Narrative," *Ecological Complexity* 3, no. 3 (2006): 172.

50 Hayden White, "The Value of Narrativity in the Representation of Reality," *Critical Inquiry* 7, no. 1 (1980): 11.

51 Adichie, "Single Story."

52 Maeda, *Laws of Simplicity*.

Personal stories and models can each function as the equivalent of a repairman's tool belt. Only those problems, which can be addressed by the tools at hand, will be noticed, attended to, and dealt with. People who have access to the limited perspective of a single tool will see the world in a similarly limited way – if you give a child a hammer, all the world is a nail. Multiple perspectives are a means of broadening the tool set, allowing for attention to a wider variety of issues and demands. We must tell and listen to stories in addition to models. We must focus on relationships and contingencies in addition to money and things. We must opt for preparedness over prediction.

> "It is important that leaders see their role as meaning makers. They must pick and choose from the rough materials of reality to construct pictures of great possibilities…. In the choice of words, values, and beliefs, you as a leader craft reality."[53]

Implications

Emergence eventually overwhelms whatever complexity reduction – and its focus on labels, categories, and simplicity – creates. It is each person's job to prepare for that eventually – to acquire the sagacity that can afford serendipity. The experience of emergence demands some form of coherence so that action can occur, and uncertainty be overcome. Ascribed coherence and retrospective judgments are but a temporary salve – dialogue amongst possible narratives, resonance amongst alternative homologies, and having the compressions on hand to recognize affordances and the context which may create them are the processes required for ongoing relief. If creativity and innovation are to thrive, they need to be afforded the degrees of freedom in which to thrive. Representations may offer simplicity and efficiency, but they do so at the expense of both fragility and the space of the degrees of freedom needed to accommodate emergence and foster creativity.

In their desire to explain things – and thus to understand causality – people often construct and interact with narratives built around representations rather than compressions. Such narratives work to reduce uncertainty only while the participants perceive that the label on which the narrative is based is the best descriptor for the situation they perceive. When best slips to satisficing, and then to questioning, the relevance and the resonance of the label-based narrative declines, and coherence declines with it. There are alternatives to making use of labels, categories, and models as the means for establishing coherence and for creating narratives. To address emergence and coherence, people need a better understanding of how narratives become good fits to their situation.

Storytelling helps us to consolidate our experiences and make them available in the future – to ourselves, and to others. The power of a story is that it allows listeners to recreate experience. Too many details or too much exegesis removes the potency of the imagination. The power of a good story is in the experience it evokes. Most stories are set in a context, which reinforces images of place and time. The model of time and place creates order, structure, and recognition – many details do not need to be told, and room is created for imagination to roam. Meaning emerges from the combination of what the storyteller supplies and what the listener adds – new images, and combinations of old and new ideas.

Here is the error – there is NO single objective account, and attempts to claim that there is by means of an identifying label are over-simplifications. Adichie would tell you they are dangerous. Even Ockham of "Ockham's Razor" fame knew this: "The source of many errors in philosophy is the claim that a distinct signified thing always corresponds to a distinct word in such a way that there are as many

53 Jay A. Conger, "Inspiring Others: The Language of Leadership," *The Academy of Management Perspectives* 5, no. 1 (1991): 44.

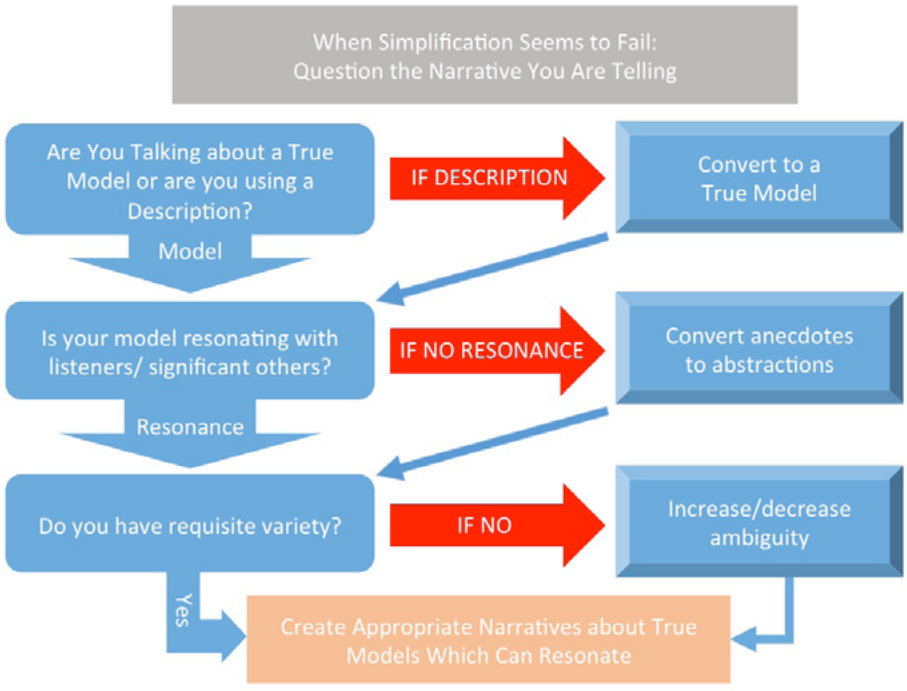

Figure 7 Heuristic. Image © 2016 by Michael Lissack.

distinct entities being signified as there are distinct names or words doing the signifying."[54] As Einstein might phrase the error: "Make things as simple as possible, but not simpler."

Simplicity is a design choice. So too is ambiguity. Simplicity, when imposed as a boundary or constraint, can reduce degrees of freedom and increase fragility. By contrast, simplicity in the form of a Black Box – which openly self-declares its ambiguity, and thereby changes the *fundierung* relation with its context – increases degrees of freedom and introduces resilience. Such simplicity can only work when it is composed of a true model, which the others with whom one interacts can find resonance in, and which is appropriate to both situation and audience. Only this kind of simplicity evokes narratives in those it encounters. With narratives built around compressions, affordances are more easily perceived, opportunities are better exploited – or at least explored, resonance has a better chance of taking hold, and experienced coherence can assert itself in the embrace of emergence.

As promised, this article ends with a heuristic. If your efforts at simplification seem as if they are not working, what do you do? You may observe that your discussions, jargon, narratives, et cetera are not resonating with your listeners. You may observe that the labels you are using seem to be interpreted differently from your intentions by your listeners. You may discover that your understanding of the situation at hand seems to not explain the very things you believe need explanation. At the risk of doing exactly what this article warns about, figure 7 shows a first-cut heuristic – but note, like any 'take-away,' it is indeed too simple and should be regarded as a trigger for further thought, rather than as a defining process. Always remember that the ability to intervene and attention to context are both key to finding resonance in any explanation. Intervention presumes goals and purposes, and they are seldom simple. Attention to context demands attention to nuance, subtleties and multiple perspectives. The simple is seldom simple after all – no matter how simple a story you try to tell.

54 See William of Ockham, *Summula Philosophiae Naturalis III, c.7; see also his Summa Totius Logicae I, c.51.*